

STOCKPILE REPORT

to the Congress



JULY - DECEMBER 1958

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF CIVIL AND DEFENSE MOBILIZATION
WASHINGTON 25, D.C.

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OFFICE OF DIRECTOR

April 1959

The Honorable Richard M. Nixon
The President of the Senate

The Honorable Sam Rayburn
The Speaker of the House of Representatives

Sirs:

There is presented herewith the semiannual report to the Congress on the strategic and critical materials stockpiling program for the period July 1 to December 31, 1958. A classified statistical supplement to this report will be transmitted to you under separate cover.

This report is submitted pursuant to Section 4 of the Strategic and Critical Materials Stock Piling Act, Public Law 520, 79th Congress.

Sincerely,

Leo A. Hoegh

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Summary

This report covers principal activities in stockpile planning and operations for the period July 1 through December 31, 1958, under the provisions of Public Law 520, 79th Congress.

Strategic stockpile inventories substantially equaled or exceeded maximum objectives for 49 materials and basic objectives for 12 additional materials. Taking into account materials available for transfer from other Government inventories, it can be considered that a total of 54 of the maximum objectives for the 74 stockpile materials have been met.

The total strategic stockpile inventory of specification-grade Group I materials was valued at \$5.7 billion on the basis of December 31, 1958, market prices; \$3.7 billion of this amount was applicable to the maximum objectives, which were valued at \$4.5 billion, and \$2 billion represented excess inventories for some of the Group I materials acquired under previously higher objectives.

Open-market purchase commitments for the six months' period totaled approximately \$1 million. There were no commitments for acquisitions from other sources.

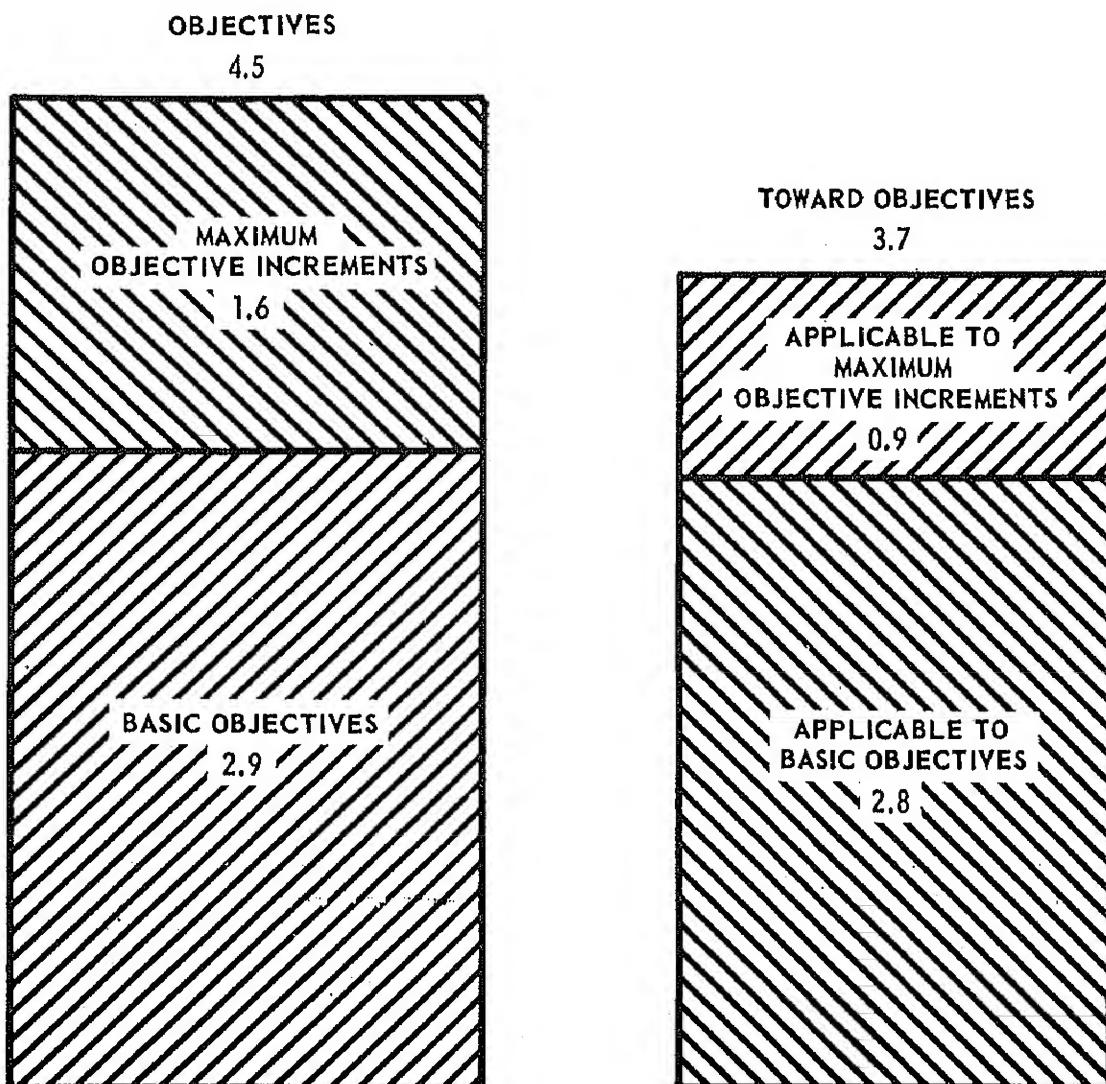
Materials valued at approximately \$54 million were delivered to the strategic stockpile from all sources, almost \$33 million of this being from previous open-market purchases.

CHART 1

STOCKPILE OBJECTIVES AND APPLICABLE INVENTORIES

As of December 31, 1958

(In Billions of Dollars, Based on December 31, 1958, Market Prices)



Inventories in excess of certain objectives, valued at \$2 billion, and outstanding commitments of \$67 million are not included.

Status of Strategic Stockpile Inventories

Under the provisions of Public Law 520, 79th Congress, the Government has accumulated inventories of strategic and critical materials to offset the potential deficit in supply in the event of an emergency. These inventories are referred to in this report as the "strategic stockpile."

ACHIEVEMENT OF STOCKPILE OBJECTIVES FOR GROUP I MATERIALS

Although the List of Strategic and Critical Materials for Stockpiling is comprised of two Groups, Group I and Group II, official stockpile objectives are now in effect for only the Group I materials shown in Table A in this section.

On December 31, 1958, as shown by Table A, strategic stockpile inventories for the Group I materials substantially equaled or exceeded the maximum objectives for 49 materials and the basic objectives for 12 additional materials.

Quantities of some of the materials available for transfer from other Government-owned inventories would increase to 54 the number of maximum objectives on hand in total Government inventory. Of the 74 materials presently on the stockpile list, the basic objectives for 63 are actually met, considering the total Government inventories available for transfer to the strategic stockpile. Basic objectives assume the availability of some imports for many of the materials during a war emergency, while the maximum objectives assume no imports except from nearby foreign sources.

Total specification-grade inventories of Group I materials in the strategic stockpile, amounting to 26.8 million tons, were valued at \$5.7 billion on the basis of December 31 market prices. This increase over the \$5.4 billion shown in the last report, in inventories of materials for which there are official objectives, is due principally to increases in the market prices for eight of the stockpile materials. At the same time the market values for two of the materials were down significantly. Of the aforementioned inventories, \$2.8 billion was applicable to the basic objectives and \$0.9 billion was applicable to the maximum objective increments. Excess specification-grade inventories for some of the Group I materials, representing quantities acquired against previously higher objectives, are now valued at \$2 billion as against \$1.8 billion last shown.

Total outstanding commitments for the strategic stockpile amounted to approximately \$67 million.

TABLE A

Group I of the List of Strategic and Critical Materials for Stockpiling

Group I stockpile materials are acquired by purchase and by transfer of Government-owned surpluses pursuant to Sections 3(a) and 6(a), respectively, of Public Law 520, 79th Congress. The basic objectives for these materials as a general rule are attained as expeditiously as possible; however, for a few materials there is no procurement against these objectives at the present time because of potentially significant changes in the supply-requirements position. The increments between the basic and maximum objectives are reached on a lower priority basis generally by means other than open-market purchases unless purchases against these objectives are determined to be necessary for mobilization base purposes.

The following table presents a checklist of the materials for which strategic stockpile inventories alone substantially equaled or exceeded objectives in effect as of December 31, 1958. The table also shows the materials for which total Government-owned inventories are at least equal to the objectives. The quantities necessary to complete some of the objectives are on order.

This listing is subject to change as inventories increase and as stockpile programs are revised.

Materials	Inventory equals or exceeds	
	Basic objective	Maximum objective
1. Abrasives, Crude Aluminum Oxide.....	x	x
2. Aluminum.....	x	x
3. Antimony.....	x	
4. Asbestos, Amosite.....		
5. Asbestos, Chrysotile...	x	x
6. Asbestos, Crocidolite..	x	x
7. Bauxite, Metal Grade, Jamaica Type.....	(1)	(1)
8. Bauxite, Metal Grade, Surinam Type.....	x	
9. Bauxite, Refractory Grade.....	x	x
10. Beryl.....	x	x
11. Bismuth.....	x	(1)

See footnotes at end of table.

Materials	Inventory equals or exceeds		Materials	Inventory equals or exceeds	
	Basic objective	Maximum objective		Basic objective	Maximum objective
12. Cadmium.....	x	x	53. Platinum Group Metals, Palladium.....	(1)	(1)
13. Castor Oil.....	x	x	54. Platinum Group Metals, Platinum.....		
14. Celestite.....	x	x	55. Pyrethrum.....	x	x
15. Chromite, Chemical Grade.....	x		56. Quartz Crystals.....	x	x
16. Chromite, Metallurgical Grade.....	x		57. Quinidine.....	x	x
17. Chromite, Refractory Grade.....	x	x	58. Rare Earths.....	x	x
18. Cobalt.....	x	x	59. Rubber, Crude Natural,.....	x	x
19. Coconut Oil.....	x	x	60. Selenium.....		
20. Columbite.....	x	x	61. Shellac.....	x	
21. Copper.....	x	(1)	62. Silicon Carbide, Crude		
22. Cordage Fibers, Abaca.....			63. Silk, Raw.....	x	x
23. Cordage Fibers, Sisal.....			64. Silk Waste and Noils...	x	x
24. Diamond Dies, Small.....			65. Sperm Oil.....	x	
25. Diamonds, Industrial, Bort.....	x		66. Talc, Steatite, Block...	x	
26. Diamonds, Industrial, Stones.....	x	x	67. Tantalite.....	x	x
27. Feathers and Down, Waterfowl.....	x	x	68. Tin.....	x	x
28. Fluorspar, Acid Grade.....	x	x	69. Tungsten.....	x	x
29. Fluorspar, Metallurgical Grade.....	x	x	70. Vanadium.....	x	x
30. Graphite, Ceylon-Crystalline and Amorphous	x	(2)	71. Vegetable Tannin Extract, Chestnut.....	x	x
31. Graphite, Madagascar-Crystalline Flake and Fines.....	x	x	72. Vegetable Tannin Extract, Quebracho.....	x	x
32. Graphite, Other than Ceylon and Madagascar-Crystalline.....	x	x	73. Vegetable Tannin Extract, Wattle.....	x	
33. Hyoscine.....	x	x	74. Zinc.....	x	x
34. Iodine.....	x	x			
35. Jewel Bearings.....	x				
36. Lead.....	x	x			
37. Magnesium.....	x	x			
38. Manganese, Battery Grade, Natural Ore,.....	x	x			
39. Manganese, Battery Grade, Synthetic Dioxide.....	x	x			
40. Manganese, Chemical Grade, Type A Ore,.....	x	x			
41. Manganese, Chemical Grade, Type B Ore,.....	x	x			
42. Manganese, Metallurgical Grade.....	x	x			
43. Mercury.....	x	x			
44. Mica, Muscovite Block, Stained A/B and Better					
45. Mica, Muscovite Film, First and Second Qualities.....					
46. Mica, Muscovite Splittings.....	x	x			
47. Mica, Phlogopite Splittings.....	x	x			
48. Molybdenum.....	x	x			
49. Nickel.....	x	x			
50. Opium.....	x	x			
51. Palm Oil.....	x	x			
52. Platinum Group Metals, Iridium.....	x	x			

¹Sufficient quantities are on hand in total Government-owned inventories to complete the objective.

²Since December 31, the basic and maximum objectives for metallurgical fluorspar have been decreased on the basis of recent supply-requirements projections. The quantities on hand and on order for all Government inventories more than meet the new objectives.

TABLE B

Group II of the List of Strategic and Critical Materials for Stockpiling

The following list constitutes Group II of the List of Strategic and Critical Materials for Stockpiling. These materials are kept under surveillance, without stockpile objectives; should it become necessary to establish stockpile objectives against a potential deficit in supply, they will be transferred to the Group I list. Quantities that are in the strategic stockpile were acquired many years ago principally by the transfer of Government-owned surpluses pursuant to Section 6 (a) of Public Law 520, 79th Congress.

1. Bauxite, Abrasive
2. Corundum
3. Cryolite, Natural
4. Diamond Dies, Other Than Small
5. Mica, Muscovite Block, Stained B and Lower
6. Mica, Phlogopite Block

7. Rutile
8. Sapphire and Ruby
9. Talc, Steatite, Ground
10. Titanium Sponge
11. Wool

OTHER MATERIALS IN STRATEGIC STOCKPILE INVENTORY

In addition to inventories of specification-grade Group I materials (those for which there are official basic and maximum objectives), the strategic stockpile, in the custody of General Services Administration, also contains quantities of (1) nonspecifi-

cation grades of the Group I materials and (2) a miscellaneous category, comprised of some of the Group II materials, materials that have been removed from the stockpile list and others, for which there are no stockpile objectives.

Most of the nonspecification-grade stocks were acquired by transfer of Government-owned surplus materials. Some of these were taken under stockpile specifications that are now outmoded for such reasons as changes in industry practice and technological advances; others were taken with a view to processing them to specification grade if this were necessary in order to meet emergency demands.

TABLE C

Strategic Stockpile Inventories of Nonspecification Grades of Materials for Which There are Stockpile Objectives

As of December 31, 1958

Material	Unit	Quantity
Aluminum.....	ST	1,676
Bauxite, Metal Grade, Surinam Type.....	LDT	24
Bismuth.....	LB	36,580
Cadmium.....	LB	1,765,200
Chromite, Metallurgical Grade....	LDT	361
Fluorspar, Acid Grade.....	SDT	4,960
Graphite, Madagascar--Crystalline Fines.....	ST	1,054
Jewel Bearings.....	PC	14,715,973
Magnesium.....	ST	7,470
Manganese, Metallurgical Grade...	LDT	65,305
Mica, Muscovite Block, Stained A/B and Better.....	LB	347,514
Mica, Muscovite Film, 1st and 2d Qualities.....	LB	23,674
Nickel.....	LB	2,345,937
Opium.....	LB	1,215
Platinum Group Metals, Platinum..	TrOz	3,197
Pyrethrum.....	LB	130
Quartz Crystals.....	LB	11,914
Tungsten.....	LB	15,288,211
Vanadium.....	LB	447,828

TABLE D

Strategic Stockpile Inventories of Materials for Which There are No Stockpile Objectives

As of December 31, 1958

Material	Unit	Quantity
Agar.....	LB	198,173
Bristles, Hog.....	LB	1,634,768
Cotton, Extra Long Staple.....	LB	109,798,340
Diamond Dies, Other Than Small..	PC	355
Diamonds, Cuttables and Gems....	KT	55,461
Diamonds, Tools.....	PC	67,462
Guayule Seeds.....	LB	17,426
Mica, Muscovite Block, Stained B and Lower.....	LB	4,690,094
Mica, Muscovite Film, 3d Quality	LB	493,737
Mica, Phlogopite Block.....	LB	223,013
Platinum Group Metals, Osmium..	TrOz	27
Platinum Group Metals, Rhodium..	TrOz	3,136
Platinum Group Metals, Ruthenium	TrOz	51
Poppy Seeds, Opium.....	LB	51,646
Quartz, Processed.....	PC	7,625,082
Quinine.....	OZ	11,987,557
Quinine, Hydrochloride of.....	OZ	1,872,460
Rutile.....	SDT	18,593
Sapphire and Ruby.....	KT	18,000,654
Talc, Steatite, Ground.....	ST	6,285
Totaquine.....	OZ	7,820,275
Zirconium Ore, Baddeleyite....	SDT	16,533
Zirconium Ore, Zircon.....	SDT	15,902

Activities for the Period July-December 1958

PROCUREMENT

The stockpile procurement directive for fiscal year 1959, issued during the period July-December 1958, authorized open-market purchases of amosite asbestos, small diamond dies, and muscovite block and film mica, with a stipulation that a portion of the diamond dies procurement was to be from domestic production. Asbestos and mica were purchased during the six months' period, and contracts for small diamond dies were being written by the end of the period. Transfers from other Government inventories were limited to copper from the Defense Production Act inventory, to be used for upgrading to oxygen-free copper as a part of the minimum readiness inventory of this material. GSA reports that pursuant to OCDM di-

rectives, materials have been selected from the stockpile inventories to be upgraded to the following higher-use forms, in accordance with recently developed OCDM specifications: molybdenum oxide, ferromolybdenum, ferrovanadium, and tungsten carbide powder.

Materials delivered to the stockpile during the period, most of them under previously executed contracts, included: antimony, amosite asbestos, chromium metal, copper, diamond bort, metallurgical-grade fluorspar, jewel bearings, synthetic manganese dioxide and metallurgical-grade manganese, muscovite block and film mica, nickel and tungsten.

Total commitments and deliveries for the strategic stockpile for the period July-December are shown by dollar value in Table E.

TABLE E

*Commitments and Deliveries for the Strategic Stockpile, July-December 1958
Valued at December 31, 1958, Market Prices*

(Thousands of dollars)

Source of stockpile materials	Toward basic objectives		Additional toward maximum objective increments		Total applicable to objectives	
	Commitments	Deliveries	Commitments	Deliveries	Commitments	Deliveries ¹
Open market.....	1,232	2,592	0	6,804	1,232	9,396
DPA inventories.....	0	0	0	0	0	0
CCC inventories.....	0	5,655	0	4,353	0	10,008
Foreign aid programs ²	0	0	0	1,285	0	1,285
Surplus declarations ²	0	0	0	7	0	7
Total.....	1,232	8,247	0	12,449	1,232	20,696

¹Does not include quantities delivered, valued at \$33 million, that are in excess of the present stockpile objectives.

²These materials are supplied without cost to the stockpile.

Source of data: General Services Administration.

SPECIFICATIONS AND SPECIAL INSTRUCTIONS

During this period, the Office of Civil and Defense Mobilization issued five revised purchase specifications and one new specification. (See Appendix B.) In addition, special instructions were issued to the delegate agency, General Services Administration, giving guidance on the stockpiling of 9 materials.

STOCKPILE STORAGE AND MAINTENANCE

Approximately 116,000 tons of strategic and critical materials were received and placed in storage for the strategic stockpile during this six months' period.

The number of facilities in use, by type, and the changes that have occurred since the last report are as follows:

Type of facility	December 31, 1958	Change in last 6 months
Military depots.....	64	-1
GSA depots.....	18	+2
Other Government-owned sites.....	6	0
Industrial plantsites....	37	+1
Leased commercial sites..	11	0
Commercial warehouses....	79	-2
Commercial tank facili- ties.....	0	-1
Port storage sites.....	1	+1
Total.....	216	0

Strategic and critical materials for the DPA, CCC and Interior (P.L. 733) accounts are also stored in the facilities shown above.

The transfer of two large Army depots to GSA custody made it unnecessary to utilize additional commercial warehouse space for the storage of strategic and critical materials during this six months' period. Plans are under way for the transfer to GSA of two other Department of Defense depots which now contain substantial quantities of stockpile materials.

During this period, GSA inspected over 22,000 deliveries of strategic and critical materials to Government inventories, including the strategic stockpile, and made more than 2,000 inspections for qualitative maintenance purposes.

In order that asset values may be preserved and materials may be ready for immediate use in an emergency, GSA carries on a continuing program of preservation and maintenance of the stockpile materials. Of the projects previously authorized 82 have been completed, and 78 new projects were authorized during the period. Studies continued on materials in outdoor storage that are subject to deterioration or to loss from wind and water erosion. Methods were developed for protecting piles of chrome and manganese concentrates and fines, and a number of piles have been cov-

ered. Investigations and tests were under way on the protection of acid-grade fluorspar concentrates.

The physical inventory program of all stocks of strategic and critical materials is scheduled for completion by June 30, 1960. Inventory-taking was completed at 5 commercial warehouses during the period, thus completing the inventorying of materials stored in commercial warehouses. Inventorying was completed at 2 GSA depots and was initiated at 20 of the 64 military depots during this period, 10 of which were completed.

DISPOSAL PROGRAMS

As of December 31, 1958, approximately 1,900,000 pounds of Chinese hog bristles had been disposed of, including the sale of 560,000 pounds between July and December 1958. More than \$10,000,000 has been recovered by the Government from the sale of hog bristles since the removal of this material from the stockpile list in August 1955.

Plans have been prepared by GSA for disposal of quantities of the following materials determined by OCDM to be no longer needed in the strategic stockpile, and notice of disposal was published in the Federal Register during this six months' period: agar, which was removed from the stockpile list in August 1958; hog bristles; rough cuttable and cut and polished gem-quality diamonds; quinine and totaquine; and osmium, rhodium and ruthenium of the platinum group metals. Disposal of the diamonds and the platinum group metals requires the prior express approval of the Congress.

DECLASSIFICATION OF STOCKPILE DATA

The review of stockpile data for the purpose of declassifying such data to the maximum extent consistent with national security, was completed in November. This Stockpile Report to the Congress contains the additional statistical data that were declassified as a result of that review.

Whenever it can be determined with reasonable certainty that public release will not be detrimental to national security, additional data will be declassified and published.

The Job Ahead

In compliance with policy established June 30, 1958, that stockpile planning assume a three-year mobilization period, interim objectives on this basis were established on the same date, based on data at hand. Some of the data used for expediency in calculating these objectives were developed several years ago. Following this, a schedule was set, according to the urgency for review, for the development of new estimates of mobilization supply and requirements as a basis for review of the stockpile objectives. Reviews for the entire list of stockpile materials will be completed as rapidly as possible.

Only limited guidance is as yet available for estimating supply and requirements in the event of an attack on this country. The current round of reviews, therefore, will cover mainly conditions of war without attack on the United States. As promptly as possible, stockpile objective reviews will also take into account estimates for attack conditions. Stockpile objectives will then reflect the highest deficit taking all these conditions into consideration.

Notes on Strategic and Critical Materials

ALUMINUM

Under the Defense Production Act aluminum expansion program, primary aluminum was put to the Government as the several contracts permitted. From July through December, 47,984 short tons of primary aluminum was accepted. The put rights of two companies were completed during this period.

ASBESTOS

The Interior Department's program for purchase of domestic low-iron chrysotile asbestos under P. L. 733 was terminated at the end of 1958.

BAUXITE

The Bureau of Mines and the Geological Survey, in cooperation with the Territory of Hawaii, made a reconnaissance survey of the recently discovered deposits of bauxitic material in the Territory and gathered samples for preliminary metallurgical testing. The results of this work were placed on open file. Although none of the concentrated products could be considered economically competitive with those from commercial bauxite deposits, additional work is justified in view of the apparent immensity of the deposits.

COLUMBIUM-TANTALUM

The program under Public Law 733 for the purchase of columbium-tantalum ended December 31, 1958.

A domestic company announced in July that it was beginning construction of a semi-production-scale plant for producing separated tantalum and columbium chlorides at Richmond, California.

A new line of columbium-treated high-strength, mild carbon steels, marketed in October, may find wide use in heavy equipment such as tractors and trucks.

An analytical method for laboratory application has been developed by the Geological Survey whereby tantalum and columbium can be successfully separated from titanium and other elements in both high- and low-grade ores.

CORDAGE FIBERS

Approximately 45,000,000 pounds of abaca and sisal were rotated during the period July-December. The bulk of the fiber which had been in the stockpile over the maximum storage limits (5 years for abaca and 7 years for sisal) has been sold under the rotation program, which should

permit more orderly rotation sales in the future.

Continued study on the storage life of abaca and sisal indicates that rotation periods for these two fibers might be further extended, which would materially reduce rotation costs.

As a result of revised mobilization plans, it has been determined that the Central American plantations, which have been operated as a supplement to the stockpile under the Abaca Act of 1950, may be terminated. Plans have been implemented under which cultivations will be harvested for the final time and the projects liquidated by the termination date of the law, March 31, 1960. It is anticipated that the approximately 20,000,000 pounds of fiber to be recovered in this final harvest will be acquired for the strategic stockpile to replace abaca sold under the rotation program.

DIAMOND DIES, SMALL

Examination of the strategic stockpile inventory of dies was begun, to assure conformity to the revised purchase specifications which were issued during this six months' period.

FEATHERS AND DOWN

The rate of deterioration of feathers and down as related to the need for rotation is being studied. A study is also being made of the economics of beneficiation versus sale of damaged material.

FLUORSPAR

The program under Public Law 733 for the purchase of domestic acid-grade fluorspar expired on December 31, 1958.

JEWEL BEARINGS

Acquisition of jewel bearings during the six months' period was confined to instrument bearings produced at the Government-owned Turtle Mountain Plant at Rolla, North Dakota. This plant, which was declared excess by the Department of the Army, is being placed in the National Industrial Reserve, and is being operated by a private firm under contract with General Services Administration.

MAGNESIUM

The Bureau of Mines' accurate determination of vibration damping capacity of magnesium provided fundamental information for developing new mag-

nesium alloys to expand the application of magnesium in rockets and missiles.

MANGANESE

A contract was entered into for the disposal of 297,000 tons of low-grade manganese ore acquired from Mexico under the Defense Production Act, as the material was determined to be surplus to defense needs.

MERCURY

The domestic and Mexican mercury purchase programs under the Defense Production Act expired on December 31, 1958.

MICA

Mica is being acquired for the strategic stockpile, through the foreign and domestic mica purchase programs. The regulation governing the domestic program was revised in order to encourage delivery of better quality hand-cobbled mica and an increased yield of stockpile-quality block mica.

Under the synthetic mica research program, a method of delamination of the crude mica was developed and considerable progress was made toward forming reconstituted sheet having required physical and electrical characteristics.

Under the natural mica research program, the design and production of an instrument to measure the waviness in block and film mica was completed. This will aid in the inspection of mica purchased by the Government. A study now under way to determine the exact properties required for mica used in tubes and capacitors will indicate the goals to be met in the development of synthetic mica.

NICKEL-COBALT

Free world production of nickel continued in excess of demand in the second half of 1958. As a result, companies continued shipments to the Government under their Defense Production Act contracts although the quantities involved had been authorized for diversion to industry.

Progress continued on the large privately financed nickel expansion project in Canada, which is scheduled for completion in 1960.

Construction of a nickle-cobalt concentrating plant at Moa Bay, Cuba, and a refinery at Port Nickel, La., assisted by a Defense Production Act contract, proceeded on schedule, with production expected to begin in mid-1959. The refinery will have annual capacity for 50 million pounds of nickel and 4.4 million pounds of cobalt.

OPIUM POPPY SEEDS

A stock of opium poppy seed, produced in 1951 against the possible need for planting in an emergency, has been maintained by the Department of Agriculture at three storage locations and periodically tested for viability. Tests of the three lots

in August 1958 indicated a germination potential of 50 percent. Studies of defense requirements for these seeds, under way during the period of this report, indicate that this seed stock may no longer be necessary for defense purposes.

RARE-EARTH METALS

The Bureau of Mines, under an expanded program of research and development of the rare-earth metals, produced, experimentally, high-purity cerium metal almost totally free of iron, carbon, and hydrogen. The metal is made in an air-tight apparatus under a shielding blanket of inert gas, such as helium.

RUBBER

During the six months' period, 20,989 long tons of rubber was rotated as compared to 10,189 tons rotated during the previous reporting period. The increase in rubber rotation resulted primarily from the generally better business conditions prevailing in the rubber industry.

SPECIAL-PROPERTY MATERIALS

Organizations cognizant of the supply and demand situations for special-property materials are reporting periodically to OCDM on significant developments affecting the outlook for these materials. Authoritative forewarnings of strategically important new uses of the materials will permit a timely assessment of supply and consideration of actions necessary to assure the supply.

TANNING MATERIALS

Production research on canaigre continued at the Arizona Agricultural Experiment Station. Trial plots have been harvested and data from culture and breeding trials summarized. Final summaries, when available, are expected to give further evidence on relative yielding ability of strains, rates and dates of fertilizer applications, frequency of irrigation and seed-versus-crown planting. The cause of root-rot has been determined and protective measures are being studied. There has been a reduction in germination of stored canaigre seed and steps will be taken to regrow the best lines to provide a stock of seed.

TITANIUM

Work has progressed on three Defense Production Act research contracts on titanium: (1) development of standard reference samples to aid production and procurement control, (2) development of an electrochemical process for the production of ultra-high-purity titanium; and (3) design, construction and operation of an explosion-proof skull-type furnace for the melting and alloying of titanium and for scrap recovery.

The manufacture of valves entirely of titanium represents a new commercial application of ti-

that is a direct outgrowth of titanium castings conducted by the Bureau of Mines at Oregon. The Bureau developed a technique for titanium and demonstrated to industry that titanium valves could be made.

Bureau of Mines, at the request of the General Services Administration, sampled and analyzed titanium sponge metal in four Defense Program inventories. No significant deterioration was detected in titanium stored by GSA for up to five years.

TUNGSTEN

What promises to be a new tungsten district on the eastern slope of the Front Range in Colorado has been discovered by a geologist and a chemist of the Geological Survey. The ancient process of collecting samples with the gold pan and the analysis of the concentrates in the field by modern geochemical methods led to the discovery. The tungsten anomaly, first encountered more than 45 miles downstream from the deposit, was traced to its source in only five days.

Appendix A

FINANCIAL SUMMARY OF STOCKPILE OPERATIONS AS OF DECEMBER 31, 1958

TABLE 1 STATUS OF OBLIGATIONAL OPERATIONS
AS OF DECEMBER 31, 1958

AUTHORITY	APPROPRIATED FUNDS ^{a/}	AUTHORIZATIONS FOR		TOTAL OBLIGATIONAL AUTHORITY ^{d/}
		MAKING ADVANCE CONTRACTS ^{b/}	LIQUIDATING OUTSTANDING ADVANCE CONTRACTS ^{c/}	
<u>Index PL 520 - 79th Congress</u>				
PL 663 - 79th Congress, August 8, 1946	\$ 10,000,000	\$ -	\$ -	\$ 10,000,000
PL 271 - 80th Congress, July 30, 1947	12,500,000	-	-	22,500,000
PL 442 - 80th Congress, March 25, 1940	47,500,000	-	-	70,000,000 ^{e/}
<u>Index PL 520 - 79th Congress</u>				
PL 663 - 79th Congress, August 8, 1946	100,000,000	-	-	100,000,000
PL 271 - 80th Congress, July 30, 1947	100,000,000	75,000,000	-	275,000,000
PL 785 - 80th Congress, June 25, 1948	225,000,000	300,000,000	-	800,000,000
PL 785 - 80th Congress, June 25, 1948	75,000,000	-	75,000,000	800,000,000
PL 119 - 81st Congress, June 23, 1949	40,000,000	270,000,000	-	1,110,000,000
PL 150 - 81st Congress, June 30, 1949	275,000,000	250,000,000	-	1,635,000,000
PL 150 - 81st Congress, June 30, 1949	250,000,000	-	-	1,635,000,000
PL 434 - 81st Congress, October 29, 1949	-	-	250,000,000	1,535,000,000
PL 759 - 81st Congress, September 6, 1950	365,000,000	-	100,000,000 ^{f/}	1,630,000,000
PL 759 - 81st Congress, September 6, 1950	240,000,000	125,000,000	-	240,000,000
PL 843 - 81st Congress, September 27, 1950	573,232,449 ^{g/}	-	-	2,558,232,449
PL 911 - 81st Congress, January 6, 1951	1,834,911,060	-	-	4,433,143,449
PL 253 - 82nd Congress, November 1, 1951	590,216,500	-	-	5,023,159,949
PL 253 - 82nd Congress, November 1, 1951	200,000,000	-	-	5,023,159,949
PL 455 - 82nd Congress, July 25, 1952	203,979,000	-	-	5,157,338,949
PL 176 - 83rd Congress, July 31, 1953	-	-	30,000,000	5,127,338,949
PL 428 - 83rd Congress, June 24, 1954	-	-	27,600,000	5,099,738,949
PL 663 - 83rd Congress, August 26, 1954	379,952,000 ^{h/}	-	-	5,479,690,949
PL 112 - 84th Congress, June 30, 1955	321,721,000 ^{i/}	-	-	5,801,411,949
PL 112 - 84th Congress, June 30, 1955	27,400,000	-	-	5,801,411,949
PL 844 - 85th Congress, August 28, 1958	3,000,000	-	-	5,804,411,949
Total PL 520	5,804,411,949 ^{j/}	1,020,000,000	1,020,000,000	5,804,411,949
Total PL 117 and PL 520	5,874,411,949 ^{j/}	1,020,000,000	1,020,000,000	5,874,411,949

^{a/} Congressional appropriations of funds for stockpiling purposes.

^{b/} Congressional appropriations of contracting authority for stockpiling purposes in advance of appropriation of funds.

^{c/} Congressional authorization to liquidate outstanding obligations incurred under previously granted advance contract authority.

^{d/} Cumulative total of appropriated funds and advance contract authorization, less authorization to liquidate outstanding advance contracts.

^{e/} Excludes \$85,792 received from sale of stockpile materials for wartime consumption. Receipts were returned to Treasury, February 1948.

^{f/} Excludes \$25,404,921 transferred to rehabilitation of Government-owned material producing plants.

^{g/} Excludes \$430,000 transferred to Transportation and Public Utilities Service, GSA.

^{h/} Excludes receipts from rotational sales.

^{i/} Excludes receipts from rotational sales.

Source: General Services Administration

TABLE 2 TOTAL OBLIGATIONS AND EXPENDITURES OF STOCKPILING FUNDS
CUMULATIVE AND BY FISCAL PERIOD, THROUGH DECEMBER 31, 1958

Fiscal Period	Obligations Incurred A/		Expenditures B/	
	Net Change By Fiscal Period	Cumulative As of End of Period	By Fiscal Period	Cumulative As of End of Period
Prior to Fiscal Year 1948	\$ 123,871,685	\$ 123,871,685	\$ 66,330,731	\$ 66,330,731
Fiscal Year 1948	252,901,411	376,773,096	82,907,575	149,238,306
Fiscal Year 1949	459,766,881	836,539,977	304,486,177	453,724,483
Fiscal Year 1950	680,427,821	1,516,967,798	440,834,970	894,559,453
Fiscal Year 1951	2,075,317,099	3,592,284,867	655,537,199	1,550,096,552
Fiscal Year 1952	948,117,547	4,540,402,444	844,683,459	2,394,780,111
Fiscal Year 1953	252,375,163	4,792,777,607	906,158,850	3,300,938,961
Fiscal Year 1954	116,586,681	4,909,364,288	644,760,321	3,945,699,282
Fiscal Year 1955	321,799,833	5,231,164,121	801,310,094	4,747,009,376
Fiscal Year 1956 C/	251,692,667	5,482,856,788	382,011,786 C/	5,129,021,162 C/
Fiscal Year 1957	190,000,109	5,672,856,897	354,576,558	5,483,597,720
Fiscal Year 1958	54,473,250	5,727,330,147	173,753,997	5,657,351,717
Fiscal Year 1959 - First Half	18,523,519	5,745,853,666	37,379,504	5,694,731,221

A/ Figures are the sum of obligations incurred under PL 520, 79th Congress and PL 117, 76th Congress.

B/ Final obligations under PL 117, 76th Congress were incurred in Fiscal Year 1949.

C/ Figures are the sum of expenditures under PL 520, 79th Congress and PL 117, 76th Congress.

C/ Final expenditures under PL 117, 76th Congress were made in Fiscal Year 1951.

C/ 1956 and subsequent fiscal periods and cumulative expenditures are reported on an accrual basis.

Source: General Services Administration

TABLE 3 EXPENDITURES OF STOCKPILING FUNDS, BY TYPE
CUMULATIVE AND FOR FISCAL YEAR 1959

TYPE OF EXPENDITURE	CUMULATIVE THROUGH <u>as/</u> JUNE 30, 1958	SIX MONTHS ENDED DECEMBER 31, 1958	CUMULATIVE THROUGH <u>as/</u> DECEMBER 31, 1958
Expenditures			
Gross Total	\$6,159,666,686	\$53,362,174	\$6,213,028,860
Less: Adjustments for Receipts from Rotation Sales and Reimbursements	502,314,968	15,982,671	518,297,639
Net Total	5,657,351,718	37,379,503	5,694,731,221
Material Acquisition Costs, Total	5,374,179,008	30,089,032	5,404,268,040
Stockpile Maintenance Costs, Total	247,367,558	6,095,095	253,462,653
Facility Construction	43,923,146	71,648	43,994,794
Storage and Handling Costs	149,285,806	8,425,889	157,711,695
Net Rotation Costs	54,158,606	(2,402,442)	51,756,164
Administrative Costs	35,805,152	1,195,376	37,000,528

a/ Cumulative figures are the total of expenditures under PL 117, 76th Congress and PL 520, 79th Congress.
Expenditures under PL 117, 76th Congress totaled \$70,000,000, of which \$55,625,237 was for materials acquisition costs and \$14,374,763 was for other costs. Final expenditures under PL 117 were made in FY 1951.

Source: General Services Administration

Appendix B

CHANGES IN STOCKPILE PURCHASE SPECIFICATIONS JULY-DECEMBER 1958

<i>Number</i>	<i>Item</i>	<i>New or revised</i>	<i>Date issued</i>
P-5a-R2	Bauxite-Metal Grade	Revised	July 23
P-67-R	Diamond Dies.....	Revised	July 16
P-100	Ferrovanadium.....	New	December 8
P-74-R2	Molybdenum.....	Revised	November 24
P-51-R1	Shellac.....	Revised	October 16
P-93-R	Tungsten Carbide Powder.....	Revised	September 11

Appendix C

REPORTS ISSUED BY THE DEPARTMENT OF THE INTERIOR JULY-DECEMBER 1958

BUREAU OF MINES

Reports of Investigations

5400 Investigation of the Cuyuna Iron-Range Manganese Deposits, Crow Wing County, Minn.
5407 Spectrographic Determination of Beryllium in a Variable Matrix.
5409 Chloride Volatilization of Oxidized Lead Ore from Eureka, Nev.
5410 Electrorefining of Titanium from Binary Alloys.
5411 Manganese Resources of the Batesville District, Arkansas. Part 2.
5416 Determination of Calcium in Wolframite Concentrates by Fluorescent X-Ray Spectrography.
5417 Synthetic Asbestos Investigations: Synthesis of Fluoramphiboles from Melts.
5423 Chemical and Galvanic Corrosion Properties of Titanium Alloys.
5426 Practical Evaluation of Electric-Resistivity Surveys as a Guide to Zinc-Lead Exploratory Drilling, Badger-Peacock Camp and Vicinity, Cherokee County, Kans.
5428 Trap for Removing Ferric Chloride from Titanium Tetrachloride.

Information Circulars

7837 Open-Pit Mining Methods and Practices at the Chino Mines Division, Kennecott Copper Corp., Grant County, N. Mex. (Copper)
7843 Manganese Deposits of Western Arizona.
7848 Methods and Operations at the Yerington Copper Mine and Plant of the Anaconda Co., Weed Heights, Nev.
7854 Exploration, Development, and Costs of the Stormy Day Tungsten Mine, Pershing County, Nev.
7855 The Mineral Industry of Turkey. (Beryl, Copper, Mercury)
7870 Mining Methods and Costs at the Holden Mine, Chelan Division, Howe Sound Co., Chelan County, Wash. (Copper)

U. S. GEOLOGICAL SURVEY

Professional Papers

308 Geology and ore deposits of the Jerome area, Yavapai County, Arizona. (Copper, lead, zinc)

Bulletins

1000-II Geochemical prospecting studies in the Bullwhacker mine area, Eureka district, Nevada. (Lead, zinc, arsenic)
1042-R Geology of the Ord mine Mazatzal Mtns., Quicksilver district, Arizona. (Mercury)
1046-I Geology of Majuba Hill, Pershing County, Nevada. (Tin, copper, uranium)
1057 Geology of the manganese deposits of Cuba.
1058-A Reconnaissance for radioactive deposits in southeastern Alaska. (Thorite, monazite, rare earths)
1062 Geology and coal resources of the Toledo-Castle Rock district, Cowlitz and Lewis Counties, Washington. (High alumina clay)
1082-A Zirconium and hafnium in the southeastern Atlantic States.

Published Mineral Investigations Maps

MF-169 Exploration for uranium-vanadium deposits by the USGS in the Club Mesa area, Uravan district, Montrose County, Colorado.
MF-181 Bedrock geology of the southwestern part of the North Range, Cuyuna district, Minnesota. (Iron-manganiferous iron)

Appendix D

AGENCY RESPONSIBILITIES FOR STRATEGIC STOCKPILE FUNCTIONS

<i>Function</i>	<i>Assignment of responsibility</i>
1. Establish basic national security policy.	National Security Council.
2. Establish specific stockpile policies and procedures.	Office of Civil and Defense Mobilization (OCDM), with advice of Interdepartmental Materials Advisory Committee (IMAC). ¹
3. Develop wartime supply and requirements estimates.	OCDM, with contributions from delegate supply and requirements agencies and assistance of interdepartmental commodity committees. ²
4. Evaluate risks pertinent to wartime supply and consumption of strategic and critical materials.	OCDM, with strategic guidance of Departments of Defense and State.
5. Determine the materials and the forms, qualities and quantities thereof to be stockpiled.	OCDM, with advice of agencies through IMAC and commodity committees.
6. Authorize procurement of materials for the strategic stockpile.	OCDM.
7. Establish over-all storage policy and provide other guidance on the storage of strategic stockpile inventories.	OCDM, with advice of Interdepartmental Stockpile Storage Committee. ³
8. Procure, store and maintain strategic stockpile materials.	General Services Administration (GSA).
9. Authorize release of strategic stockpile materials for use in an emergency.	(a) The President, at any time for common defense. (b) OCDM, in the event of enemy attack upon the United States.
10. Authorize disposal of strategic stockpile inventories--for other than emergency use.	OCDM: (a) Subject to approval of the Congress or failure of the Congress to act within 6 months after notice, if for reasons of obsolescence as defined in PL 520, 79th Congress. (b) Subject to express approval of the Congress if for reasons other than obsolescence.
11. Administer releases and disposals of strategic stockpile materials.	GSA, with advice of agencies concerned.

¹ Interdepartmental Materials Advisory Committee is chaired by OCDM, with members from Departments of State, Defense, Interior, Agriculture and Commerce and from General Services Administration and International Cooperation Administration.

² Interdepartmental commodity advisory committees, chaired by OCDM, have members from the following agencies as appropriate: State, Defense, Interior, Agriculture, Commerce, GSA, and Tariff Commission.

³ Interdepartmental Stockpile Storage Committee is chaired by OCDM, with members from Departments of Defense, Interior, Agriculture and Commerce and GSA.